Amendments to the Specification

Please amend the specification as follows:

Please replace the paragraph beginning at page 13, line 28, with the following rewritten paragraph:

As shown in the figure, data is recorded to the DVD-RAM disc 100 with the smallest recording unit being one sector (= 2 KB). Furthermore, 16 sectors equal 1 ECC block, and the ECC processor 102 applies error correction processing using ECC block units.

Please replace the paragraph beginning at page 18, line 8, with the following rewritten paragraph:

Figs. 6A and 6B show ~~shows~~ the logical data space of a DVD-RAM disc comprising logical sectors. The logical data space is called the "volume space" and is used to record user data.

Please replace the paragraph beginning at page 23, line 10, with the following rewritten paragraph:

Figs. 13A to 13C2 ~~shows~~ show the PAT table and PMAP table used to transmit structure information for the audio stream and video stream of each program. As shown in Figs. 13C1 and 13C2, the PMAP table stores information relating to the combination of video and audio streams used in each program, and the PAT table stores information correlating programs and PMAP tables. The playback device can therefore reference the PAT table and PMAP table to detect the video and audio streams for the program to be output.

Please replace the paragraph beginning at page 24, line 19, with the following rewritten paragraph:

As shown in Fig. 15A, a PS_VOB information table, TS1_VOB information table, and TS2_VOB information table are separately recorded according to the object types. Each of these tables stores VOB information for each object.

Please replace the paragraph beginning at page 27, line 3, with the following rewritten paragraph:

During data playback, the cell information 60 is sequentially read from the PGC information 50, and the objects specified by each cell are reproduced for the playback period defined by the cell.

Please replace the paragraph beginning at page 30, line 11, with the following rewritten paragraph:

Using the cell information of the playback path information (PGC) shown in Fig. 17, the controller 211 ~~an~~ can also capture the type of cell reproduced, corresponding objects, and the playback start and end times of the objects. The controller 211 inputs the data for the period of the object specified by the cell information to the appropriate decoder.

Please replace the paragraph beginning at page 33, line 23, with the following rewritten paragraph:

After ending the encoding process, the system controller 212 generates the presentation control information and VOB information (PS_VOBI) for the PS_VOB shown in Figs. 15A and 15B.

Please replace the paragraph beginning at page 43, line 25, with the following rewritten paragraph:

Fig. 23 shows storing the UP packet when the UP packet is defined as a User Private stream. In this case, an identification number greater than or equal to "0x80" and less than or equal to "0xFF" is allocated to stream_type of the PMT corresponding to the UP packet. A unique PID is assigned to the UP packet. The internal data structure of the UP packet does not conform to the MPEG standard. Note that in this example the UP packet includes a section structure called the DVD_attribute_section().

Please replace the paragraph beginning at page 47, line 17, with the following rewritten paragraph:

The self-encoded TS stream shown in Fig. 27A comprises the VOBU (playback and decoding units) of the self-encoded TS stream shown in Fig. 27B. As shown in Fig. 27C one VOBU includes multiple multiplex blocks (corresponding to MPEG_PS packs). Each multiplex block can be segmented into fixed length data units as shown in Fig. 27D (enabling easy packaging in the device) or into variable length data units as shown in Fig. 27E (thereby consuming less disc space). In the cases shown in Figs. 27D and 27E, the multiplex blocks are respectively formed by segmenting non-elementary steams such as PSI/SI packets or UP packets and the elementary stream, but as shown in Fig. 27F a multiplex block could store both an elementary stream and non-elementary stream objects such as PSI/SI packets or UP packets. Note that in Fig. 27F multiplex block #1 and multiplex block #2 are one multiplex block.

Please replace the paragraph beginning at page 48, line 13, with the following rewritten paragraph:

Figs. 28A to 28G describes the multiplexing method of the present invention, comparing with the conventional stream multiplexing method shown in Fig. 8. As shown in the figure, the final format conforms to the MPEG_TS format shown in Fig. 28G. The video stream (Fig. 28A) comprises plural GOP (Fig. 28B). Each GOP contains specific picture data, and a TS packet group of a data size equivalent to the data size of one pack when converted to an MPEG_PS is one multiplex block (Fig. 28C). That is, one multiplex block is segmented into plural TS packets equivalent to the data size of one pack as shown in Fig. 28D. The audio stream is likewise packed in one multiplex block group having a plurality of TS packets. As ~~sown~~ shown in Fig. 28E, a VOBU is formed by multiplexing by multiplex block unit. The greatest difference between the present invention and the prior art shown in Fig. 8 is in that data units of a size equivalent to the data size of one MPEG_PS pack are grouped to form the multiplex blocks (see Fig. 28E).

Please replace the paragraph beginning at page 52, line 17, with the following rewritten paragraph:

Fig. 33 shows the configuration of the encoder in a data recording apparatus according to the present invention. As shown in the figure, the encoder 214 includes elementary stream encoders 230a, 230b and 230c, and a system encoder 232. The encoder 214 receives a control signal from the system controller 212 and then runs the encoding process with the elementary stream encoders 230a, 230b and 230c, or the system encoder 232 while switching between elementary encoding and system encoding. Each of the elementary stream encoders 230a, 230b and 230c receives video, audio, and VBI (Vertical Blanking Interval) signals for encoding.

Please replace the paragraph beginning at page 56, line 20, with the following rewritten paragraph:

< Constrained SESF stream structure >

Fig. 80 shows the complete stream structure of a Constrained SESF. A Constrained SESF includes plural SESF ~~capsules .~~capsules. An SESF capsule contains specific multiplexing units, and a Tip packet (detailed below) at the head. The presentation time stamp (PTS) of each SESF capsule and an address of the Tip packet are correlated in the access map 80c. As described below, for TS2PS conversion, a conversion process is accomplished in SESF capsule units.

Please replace the paragraph beginning at page 68, line 2, with the following rewritten paragraph:

Furthermore, the reason there are 32 packets is as follows. It could be sufficient that there are at least 31 PAT, PMT, PCR, and SIT packets between two consecutive Tip packets, because: the PAT, PMT packets describing the MPEG_TS program configuration data must be embedded at least once every 100 msec; a SIT packet storing specific information for each program must be embedded at least once every 1 second; the PCR packet storing the PCR (program clock reference) establishing the decoder reference time must be embedded at least once every 100 msec; Null packets not belonging to any Multiplexing Unit can be freely added; and the Tip packet insertion

interval is 1.0 second or less on the AV data playback time base. Therefore, the count of the VOBU pack can be determined from the access map by inserting PAT, PMT, PCR, and SIT packets between two consecutive Tip packets according to these defined times, and adding Null packets until there are 32 packets.

Please replace the paragraph beginning at page 79, line 12, with the following rewritten paragraph:

VOBU_SE_E_PTM (time information when presentation of video data in the VOBU ends according to the sequence_end_code field) is filled with "0x00000000" in all VOBUs before the last VOBU, because the sequence_end_code is only permitted in the last VOBU and the middle VOBU therefore do not contain the sequence_end_code. VOBU_SE_E_PTM is set to the same value as in VOBU_E_PTM in only last NV_PCK having sequence_end_code in the last ~~VOBU .~~VOBU.

Please replace the paragraph beginning at page 91, line 3, with the following rewritten paragraph:

However, in consideration of facility of conversion to DVD, only I-picture in SESF capsule is located from the beginning TS packet in the Multiplexing Unit storing the first video data in the SESF capsule. P-picture and B-picture may not be located from the beginning of the Multiplexing Unit as described above.